



PSB LLRF requirements review

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Aim of the review

- Evaluate status of 3 studies influencing LLRF **beam-related requirements for > LS2**:
 - ❑ **Triple harmonic** operation.
 - ❑ Emittance blowup with **band-limited phase noise @h1**
 - ❑ **Simulations** to determine **number of harmonics/cavity** where we need to reduce the cavity impedance by LLRF feedback
- Define next steps/new features needed (*hope not!*) for 2018
- Start addressing **feasible** set of LLRF requirements
 - ❑ Recipe for generating all beams (ex: voltages at various harmonics, RF gymnastics etc)
 - ❑ **Phase 1** requirements: cover 1 or 2 years of operation post LS2
 - ❖ **Phase 2** and **following**: more demanding requirements

Machines & beams planning

- End PSB beam: mid Nov 2018.
 - Beam to PSB after LS2: mid Sept 2020
 - Beam extracted from PSB: Dic 2020
 - ❑ Total beam carnet available in 7 months
 - ❑ LHCPROBE available for PS after 2 months
 - ❑ LHC25 available for PS after 2.5 months
- Beam to beam:
~ 22 months
(longer than LS1)
- Smooth operational scenario: problems (thus contingencies) not considered
- NB: new AD HLRF + LLRF to be commissioned shortly afterwards by same team.
 - ❑ Ahem ... do we have official confirmation for new HLRF/LLRF projects?



Machines & beams planning (2)

LS2 & the machines restart will be a marathon!



- Plan well LS2 and machine restart work
 - Select features to deploy
 - The whole machine will be different!! (unlike after LS1)
 - Need balance between **system complexity** - **ease of commissioning** - **people availability**
 - Align user's expectations to manpower reality
 - Deployment in phases
 - Controls tools must be available when needed (unlike after LS1)
- Important: **implement succession plan** for key-members who will retire soon after LS2 (ex: John, Mauro, ~~Steve~~).



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